# METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

# STORMWATER MANAGEMENT MANUAL

**Volume 1** **REGULATIONS**
**Section 7.6 Proprietary BMPs**
**Interim Policy**

Recommended by:

Scott Potter
Director, Metropolitan Department of Water and Sewerage Services

24 Jan 13
Date

Approved by:

Karl F. Dean
Mayor, Metropolitan Government of Nashville and Davidson County

1/25/13
Date

## 7.6 Proprietary BMPs

Many proprietary BMPs are available to treat stormwater runoff. However, some of these BMPs do not have established pollutant removal data. As indicated in Table 7-2 above, Metro considers proprietary BMPs as Limited Application BMPs.

Metro requires manufacturers to conduct testing to demonstrate the pollutant removal capability of proprietary BMPs. Test protocols should be developed by qualified laboratories to ensure the usefulness of the data submitted. Metro has established submittal requirements and guidelines for test requirements. Proprietary devices must be approved by MWS before they can be considered for use in Metro through an application and acceptance process. Submittal requirements can be found in section 7.6.1; however manufacturers are to contact MWS prior to application to ensure that the most recent application requirements are obtained. Manufacturers' claims for BMP performance must be verified through data that is obtained in independent third party testing. For pretreatment applications (50% TSS removal), either field testing or laboratory testing is required. For full treatment applications (80% TSS removal), both field testing and laboratory testing are required.

MWS will also accept current proprietary BMP certifications from the New Jersey Department of Environmental Protection (NJDEP). MWS will consider the results of other verification systems and review them on a case by case basis.

### *7.6.1 Submittal Requirements*

The application for consideration of proprietary BMP approval by Metro shall include the following:

1. Statement of the intended use of the device. Intended uses may include pretreatment (for floatables, oil and grease, or sediment, for example), water quality treatment, hydraulic detention, velocity dissipation, an element of a comprehensive treatment train, etc.

2. Statement of the TSS removal performance at the flow rate specified in the equation in Section 7.6.2, certified by an independent testing laboratory.

3. A report of the results of the independent testing laboratory satisfying the requirements of 7.6.3.1.

4. Published technical papers, if available, documenting performance of the device.

5. Engineering drawing of the assembled device.

6. Installation, repair, and maintenance instructions and schedule.

7. Parts list including materials of construction and recommended manufacturers.

8. Certified tests of load bearing capacity for traffic bearing devices.

9. A sample device should be made available to Metro Water Services Stormwater Division upon request.

10. A list of locations where the device is installed and operational. The list should include the customer's name, agency, telephone number, and address.

11. Other relevant information available from the manufacturer.

Any device found not to meet the certified performance criteria in the field may be removed from the approved list. Submittals containing unsubstantiated or unrealistic claims will be returned without further review pending receipt of a resubmittal without such claims. An approved device may not be suitable for use in all applications. Metro may reject the use of an otherwise approved device if a specific application is determined to be not suitable.

*7.6.2 Design Guidance for Water Quality Treatment*

Most proprietary BMPs are flow-through-type BMPs and rated for TSS removal based upon a specified flow rate. The WQv equation, which forms the foundation of Metro's stormwater quality program, establishes a volume that must be treated. In an effort to simulate the WQv approach for proprietary BMPs, the following peak flow design equation must be used to develop the stormwater quality treatment required.

$$Qp = C * I * A$$

Where:
Qp = the peak flow through the proprietary BMP in cfs
C = runoff coefficient
I = rainfall intensity, 2.45 inches/hour for Metro
A = the contributing drainage area for the BMP, in acres

*7.6.3 Performance Standards for Proprietary BMPs*

Water quality treatment for Metro is defined as a goal of 80% TSS removal. Treatment may be achieved using a single treatment method, such as a wet pond, or by using a treatment train. A treatment train achieves 80% removal of TSS using a combination of pretreatment and/or treatment methods. Manufacturers of proprietary BMPs can apply for either 1) pretreatment approval (50% TSS removal); or 2) full treatment approval (80% TSS removal).

Proprietary BMP approval shall last for 4 years for devices approved under MWS testing requirements at which time reapplication will be required. Applications will be required to meet new Metro regulations or policy in effect at the time of reapplication. Proprietary BMP approval for devices certified by NJDEP shall expire as stated in their certification letter.

Metro reserves the right to recall approvals for reasons including, but not limited to: 1) restrictions placed by the Tennessee Department of Environment and Conservation; 2) product modifications or system failures indicating questionable performance capability; 3) changes in Metro stormwater regulations or policy, or 4) changes in the Technology Acceptance Reciprocity Partnership (TARP) or NJDEP protocols.

*7.6.3.1 Testing Requirements for Proprietary BMPs*

It is the responsibility of the manufacturer to develop and implement technically valid plans for laboratory and field testing. The following guidelines are provided as minimum considerations for an approvable testing program. Metro reserves the right to reject any data submitted including rejection based on invalid or undocumented testing procedures. Metro may provide review of test plans as staff time allows.

All testing plans must include a Quality Assurance Plan defining testing and analysis methods. The Quality Assurance Plan must be prepared by a qualified testing laboratory. Examples of a Quality Assurance Plan are provided, among other sources, in the Technology Acceptance Reciprocity Partnership (TARP) Protocol for Stormwater BMP Demonstrations: (http://www.njstormwater.org/docs/tarp_stormwater_protocol.pdf).

*7.6.3.1.a Field Testing*

Metro requires that field testing conform to the TARP Protocol (Tier II) for Stormwater BMP Demonstrations, and that conformation with and deviations from the TARP be noted in an applicant's protocol and test report (http://www.njstormwater.org/docs/tarp_stormwater_protocol.pdf).

The following items are required in addition to the TARP procedure:

1. Results are to be reported in mg/L TSS. TSS shall be analyzed in accordance with Standard Method APHA 2540D. Reporting in both TSS and SSC is recommended by TARP procedure.

4. All data collected must be reported. All maintenance performed on the tested device at any time during the overall field testing program shall be reported. This reporting shall include a description of each task performed, reason(s) for the maintenance, the quantities of any sediment removed, and a discussion of any anomalous, irregular, or missing maintenance data.

5. Particles larger than 1000 microns must be excluded from the analysis results.

6. At a minimum, the peak runoff rate from at least three of the sampled storms shall exceed 75% of the design flow of the unit. At least five of the flows must exceed 50% of the design flow of the unit.

7. Field tests must be conducted without adding sediment to the influent or augmenting flow. Sediment must be naturally-occurring, undisturbed on-site sediment.

8. Rainfall data from a site gauge must be provided for each sampled storm event.

9. In order to determine the tested device's required maintenance interval, the minimum duration of the overall field testing program shall be one year beginning at the time of the device's installation, commissioning or the beginning of the removal rate testing, whichever is greater.

*7.6.3.1.b Laboratory Testing*

Metro requires that laboratory testing conform to the following NJDEP protocols:

- Protocol for Manufactured Hydrodynamic Sedimentation Devices (http://www.njstormwater.org/pdf/hydrodynamic_protocol_12_15.pdf)
- Protocol for Manufactured Filtration Devices (http://www.njstormwater.org/pdf/filter_protocol_12-15-09.pdf)

Conformation with and deviations from the NJDEP protocol should be noted in an applicant's protocol and test report.